Signal module

Art. No. **150930**

Type No. **02282S08**

Exemplary illustration

The EB 80 system supports a wide range of input/output signal modules that can be easily added to fieldbus-connected or additional systems. Installation is simple: just remove the aluminum end plate on the left side of the “Electrical connection with fieldbus – E” module, insert the signal modules with tie rods, and reattach the plate.

Each signal module has two parts, ensuring flexibility and easy maintenance:

- Lower section: universal transmission electronics.
- Upper section: type-specific and easily replaceable, either with an identical or different module, without removing anything else from the system.

The special EB 80 Wireless Module supports both Bluetooth® and Wi-Fi, enabling access to data via the EB 80 I4.0 diagnostics functions. It enhances traditional servicing with advanced analytics for safe, reliable, and long-term operation. Using the dedicated “Metal Work EB80Up” app, the module connects to mobile devices via Bluetooth®. Additionally, it supports Ethernet communication through the MQTT protocol, allowing full network configuration.

Technical data

Module type	S
Module description	signal module
Version	4x M8 analogue inputs for temperature measurement
Supply voltage range	12 -10 % to 24 +25 % V DC
Operating voltage min.	10.8 V DC
Operating voltage max.	30 V DC
Max. admissible voltage	30 V DC*
Sensors supply voltage	corresponding to the supply voltage
Protection	not necessary, 30V supply voltage generated by module itself
Electrical connection	4x M8 female connector, 4-pin
Diagnostics	one LED for each input and reporting to the Master
Digital convert resolution	15 bit + prefix
Sensor type (RTD) platinum (-200 to 850 °C)	Pt100, Pt200, Pt500, Pt1000 (TK = 0.00385 and TK = 0.00391)

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Technical data

Sensor type (RTD) nickel (-60 to 180 °C)	Ni100, Ni120, Ni500, Ni1000 (TK = 0.00618)
Connections type (RTD)	2, 3 or 4 wire
Type of thermocouple (TC)	J, E, T, K, N, S, B, R
Cold junction compensation for thermocouples, internal	with internal electronic sensor included
Cold junction compensation for thermocouples, external	PT1000 sensor (connection on M8 thermocouple plug)
Temperature measuring range min.	-200 °C
Temperature measuring range max.	800 °C
Max. error compared to ambient temperature	±0.5 % (TC) | ±0.06 % (RTD)
Max. basic error (ambient 25 °C)	TC ±0.4% | RTD 4 wire ±0.6°C (res. 0.1) | ±0.2°C (res. 0.01)
Repeatability	±0.03 % (ambient temperature 25 °C)
Address employment	2 bytes for each input - 8 bytes per module
Cycle time (module)	240 ms
Software linearization	RTD: piecewise linear approximation. TC: ITS-90 scale.
Max. length of shielded cable for the connection	< 30 m
Min. ambient temperature	-10 °C
Max. ambient temperature	50 °C
Housing	technopolymer
Sealant	NBR
Protection IP	IP 65
Series	EB 80

*IMPORTANT! Voltage greater than 32 V DC will damage the system irreparably.
The sensors used must be taken into account with regard to the minimum operating voltage!

Commercial data

eCl@ss 5.1.4	27291501
eCl@ss 9.0	27291390
UNSPSC_Code_v190501	40141603
UNSPSC_CodeDesc_v190501	Pneumatic valves

EB 80 SIGNAL MODULES - S

The EB 80 systems come with numerous input or output signal modules, which can be mounted on systems with fieldbus electrical connection or additional systems.
The signal modules can be added at any time. You only need to unscrew the aluminium plate to the left side of the "Electrical connection - E" module and install the "Signal Modules - S" (ready fitted with fixing tie rods) and retighten the end plate to the left.
Each signal module consists of two parts: the lower part, which contains transmission electronics of the controls, is unique and valid for all modules; the upper part, which is specific for each type.
This design highlights the modular features of the EB 80 system: the upper part of the "Signal Module - S" can be replaced either with a similar one by simply unscrewing the screws in the event of failure or one of another type. All this without having to remove anything from the system.

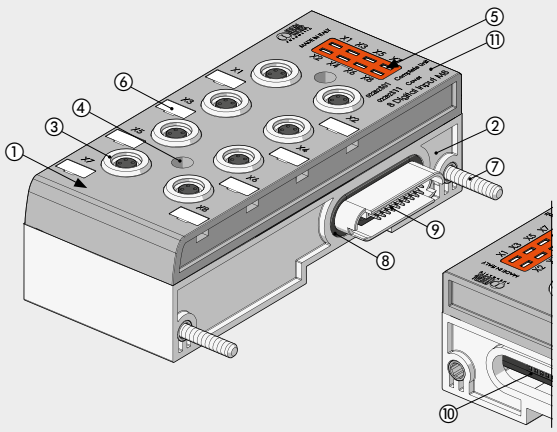
TECHNICAL DATA

Supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	32 ***
Power and current		See individual "Signal Modules - S"
Protection		See individual "Signal Modules - S"
Diagnostics		Local via LED light and software message
		Undervoltage, overvoltage, short-circuit and overload of individual connector and the entire module,
Maximum number of signal modules		16 digital inputs modules 8 M8 +
		16 digital outputs modules 8 M8 (or 8 modules with 16 Inputs + 8 modules with 16 Outputs) ** +
		4 analogue inputs modules + 4 analogue outputs modules +
		4 analogue input modules for temperature measurement
Ambient temperature	°C	-10 to + 50
	°F	14 to 122
Versions		digital input, digital output, analogue input, analogue output
Degree of protection		IP65 (with connectors connected or plugged if not used)
		IP40 for 16-position I/O modules

* **Minimum voltage 10.8V required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.28**
** **For 16-IN/OUT modules, powered via the fieldbus. Check that the total current of simultaneously connected Inputs and Outputs is not greater than 3.5 A.**
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
N.B.: Refer to the following pages for specific technical data of each module.

COMPONENTS

① UPPER PART BODY: technopolymer
② LOWER PART BODY: technopolymer
③ M8 CONNECTOR: signal connection
④ SCREW securing the upper part to the lower part
⑤ LED light
⑥ NAMEPLATE: removable
⑦ TIE ROD to secure modules: nickel-plated brass + stainless steel grub screw
⑧ GASKET: NBR
⑨ MALE CONNECTOR for other modules - S or fieldbus connection - E
⑩ FEMALE CONNECTOR for other modules - S or fieldbus connection - E
⑪ IDENTIFICATION of wording with laser



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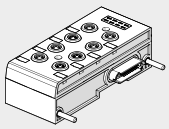
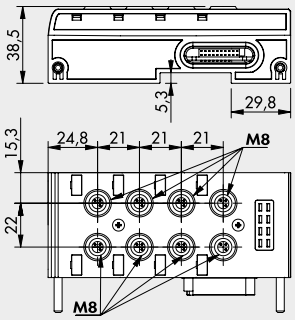
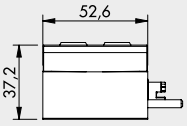
DIMENSIONS - ORDERING CODES

8 M8 DIGITAL INPUTS



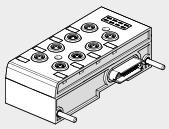


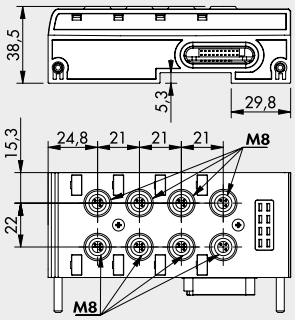


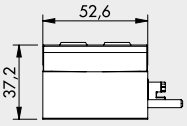
Code	Description	Weight [g]
02282**S01**	EB 80 module with 8 M8 digital inputs	250

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		8 M8 3-pole female connectors
Input active signals		One LED for each input

8 M8 DIGITAL OUTPUTS







Code	Description	Weight [g]
02282**S02**	EB 80 module with 8 M8 digital outputs	250

TECHNICAL DATA		
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 500
Current for each module	mA	max 3000
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected outputs
Connections		8 M8 3-pole female connectors
Outputs active signals		One LED for each output

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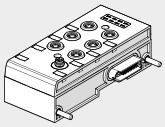
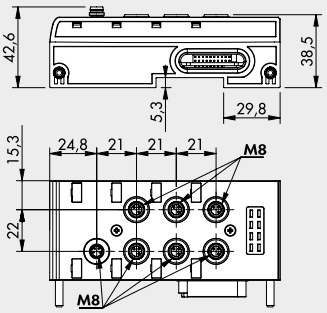
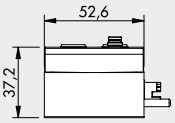
6 M8 DIGITAL OUTPUTS + ELECTRICAL POWER SUPPLY







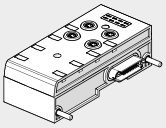
Code	Description	Weight [g]
02282**S03**	EB 80 module with 6 M8 digital outputs + electrical supply	240

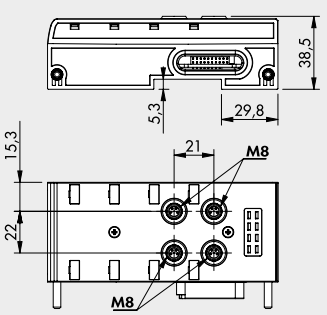
TECHNICAL DATA		
Bus supply voltage range	VDC	12 -10% 24 +30%
Digital out supply voltage range	VDC	12 -10% 24 +30%
Minimum operating voltage	VDC	10.8 *
Maximum operating voltage	VDC	31.2
Maximum admissible voltage	VDC	32 ***
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 1000
Current for each module	mA	max 4000
Type of output		Software-configurable PNP/NPN
Protection		Overload, short-circuit and polarity inversion protected outputs
Connections		6 M8 3-pole female connectors for Signals
		1 M8 4-pole male connector for Supply
Output active signals		One LED for each output

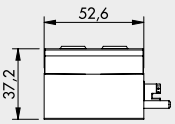
*** Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2.28**

***** IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**

4 M8 ANALOGUE INPUTS







Code	Description	Weight [g]
02282**S04**	EB 80 module with 4 M8 analogue inputs	220

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 650
Type of input, software configurable		0/10VDC; 0/5VDC; +/-10VDC; +/-5VDC; 4/20 mA; 0/20 mA
Protection		Overload and short-circuit protected inputs
Connections		4 M8 4-pin female connectors
Local diagnostic signal via LED		Overload, short-circuit or type of input not complying with the configuration
Digital convert resolution		15 bit + prefix

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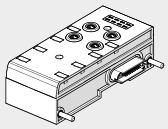
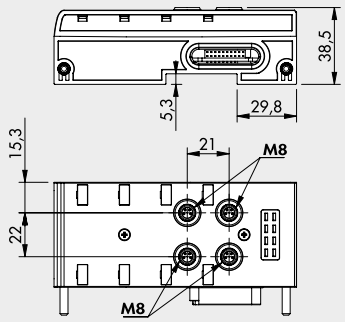
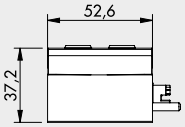
4 M8 ANALOGUE OUTPUTS



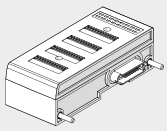


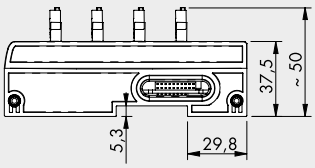


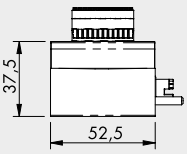
Code	Description	Weight [g]
02282**S05**	EB 80 module with 4 M8 analogue outputs	220

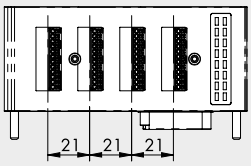
TECHNICAL DATA		
Devices supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 650
Type of output		0/10VDC; 0/5VDC; +/-10VDC; +/-5VDC; 4/20 mA; 0/20 mA
Protection		Overload and short-circuit protected outputs
Connections		4 M8 4-pole female connectors
Local diagnostic signal via LED		Overload, short-circuit or type of connection not complying with the configuration
Digital convert resolution		15 bit + prefix

16 DIGITAL TERMINAL BLOCK INPUTS









Code	Description	Weight [g]
02282**S06**	EB 80 module with 16 digital terminal block inputs	200

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Current for each connector	mA	max 200
Current for each module	mA	max 500
Input impedance	kΩ	3.9
Type of input		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected inputs
Connections		4 12-pin connectors with spring clamping
Input active signals		One LED for each input
Degree of protection		IP40

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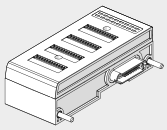
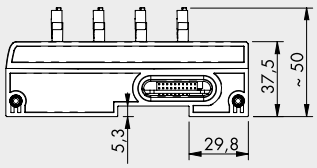
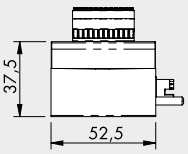
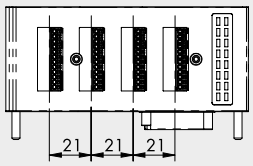
16 DIGITAL TERMINAL BLOCK OUTPUTS







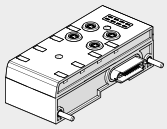


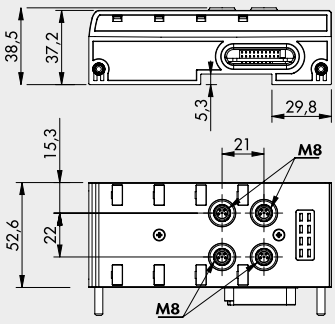
Code	Description	Weight [g]
02282**S07**	EB 80 module with 16 digital terminal block outputs	200

TECHNICAL DATA		
Output voltage		Corresponding to the supply voltage
Current for each connector	mA	max 500
Current for each module	mA	max 3000 *
Type of output		Software-configurable PNP/NPN
Protection		Overload and short-circuit protected outputs
Connections		4 12-pin connectors with spring clamping
Outputs active signals		One LED for each Output
Degree of protection		IP40

*** IMPORTANT: the module is powered via the fieldbus. Check that the total current of connected outputs is not greater than 3.5A.**

4 M8 ANALOGUE INPUTS FOR TEMPERATURE MEASUREMENT





Code	Description	Weight [g]
02282**S08**	EB 80 module with 4 M8 analogue inputs for temperature measurement	220

TECHNICAL DATA		
Sensors supply voltage		Corresponding to the supply voltage
Maximum input voltage	VDC	30
Sensor type (RTD)		
platinum (-200 to +850°C)		Pt100, Pt200, Pt500, Pt1000 (TK = 0.00385 and TK = 0.00391)
nickel (-60 to +180°C)		Ni100, Ni120, Ni500, Ni1000 (TK = 0.00618)
Connections type (RTD)		2, 3 or 4-wire
Type of thermocouple (TC)		J, E, T, K, N, S, B, R
Cold junction compensation for thermocouples		
internal		With internal electronic sensor included
external (recommended in case of sudden changes in the ambient temperature)		PT1000 sensor for connection with the M8 thermocouple connector
Temperature range	°C	– 200 to + 800
	°F	– 328 to + 1472
Digital convert resolution		15 bit + prefix
Max error compared to ambient temperature		±0.5% (TC)
		±0.06% (RTD)
Max. basic error (ambient T 25°C)		±0.4% (TC)
	°C	±0.6 (with 4-wire RTD with 0.1 resolution)
	°C	±0.2 (with 4-wire RTD with 0.01 resolution)
Repeatability (ambient T 25°C)		±0.03%
Address employment		2 bytes for each input - 8 bytes per module
Cycle time (module)	ms	240
Software linearization		
for RTD		Piecewise linear approximation
for TC		NIST (National Institute of Standards and Technology) Linearization based on ITS-90 scale (International Temperature Scale of 1990) for the thermocouple linearization
Maximum length of shielded cable for the connection	m	< 30
Diagnostics		One LED for each input and reporting to the Master

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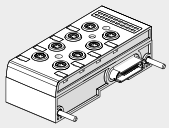
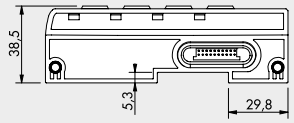
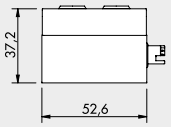
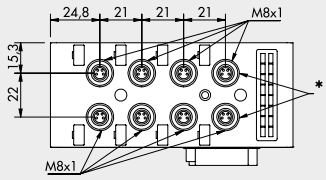
16 M8 CONFIGURABLE DIGITAL INPUTS/OUTPUTS

This is an innovative module with 8 connectors and 16 digital signals, each configurable as a digital input or digital output.
The S21 module can be configurated via software by connecting the island's fieldbus module to a PLC . The signals of the first two connectors can also be used as inputs for reading direct current (VDC) motor encoders. Since each 4-pin connector allows the management of two signals (a pair of pins for each signal), dedicated connectors are also provided that allow the separation of the signals.









* Connectors usable also for reading direct current motor encoders

Code	Description	Weight [g]
02282**S21**	EB 80 module with16 M8 configurable digital inputs/outputs	230

TECHNICAL DATA		
Supply voltage		Corresponding to power voltage
Current for each connector	mA	max 1000
Current for each module	mA	max 3000
Current for each output	mA	max 500
Type of output		PNP
Input impedance	kΩ	3.9
Type of input		PNP
Protection		Overload and short-circuit protected inputs /outputs
Connections		8 M8 4-pole female connectors
Input active signals		One LED for each input
Output active signals		One LED for each output
Default configuration		Port X1…X8 Digital inputs
		Port X9…X16 Digital outputs
Encoder Configuration		
Type of input		PNP
Input active signals	V	>12
Input not active signals	V	<12
Maximum Frequency	Hz	300
Value format		32 bit (DWORD)
Maximum count		4.294.967.295

KEY TO CODES

02282	S	01
FAMILY	SUBSYSTEM	TYPE
02282 EB 80	**S** Modules	**01** 8 M8 digital inputs **02** 8 M8 digital outputs **03** 6 M8 digitaloutputs + electrical supply **04** 4 M8 analogue inputs **05** 4 M8 analogue outputs **06** 16 digital terminal block inputs **07** 16 digital terminal block outputs **08** 4 M8 analogue inputs for temperature measurement **21** 16 M8 configurable digital inputs/outputs

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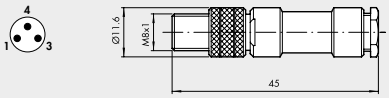
M8 PLUG

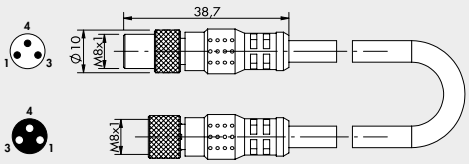
Code	Description
0240009039	Plug for M8 connector

M8 CONNECTOR FOR DIGITAL INPUTS / OUTPUTS



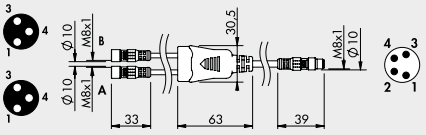
Code	Description
0240009010	M8 3-pin straight connector

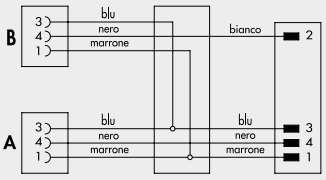
M8 CONNECTOR WITH CABLE FOR DIGITAL INPUTS /OUTPUTS



Code	Description
0240009009	M8-M8 3-pin straight connector with cable L = 3 m

Y-CONNECTOR WITH CABLE FOR DIGITAL INPUT/OUTPUT

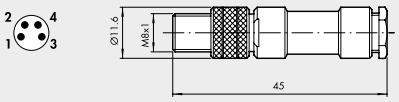




Code	Description
0240009048	Y-connector M8 4-pin M / double M8 3-pin F with cable L = 0.7 m

Note: Can only be used with S21 modules

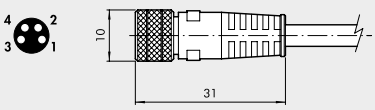
M8 MALE CONNECTOR FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240010300	M8 4-pin male connector

M8 CONNECTOR FOR POWER SUPPLY

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240009060	M8 4-pin female connector for power supply, cable L = 3 m
0240009037	M8 4-pin female connector for power supply, cable L = 5 m
0240009058	M8 4-pin female connector for power supply, cable L = 10 m
0240009059	M8 4-pin female connector for power supply, cable L = 15 m
0240009P60 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 3 m
0240009P37 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 5 m
0240009P58 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 10 m
0240009P59 *	M8 4-pin female connector for power supply, H-FLEX CL6, cable L = 15 m

* Very flexible cables, class 6 according to IEC 60228

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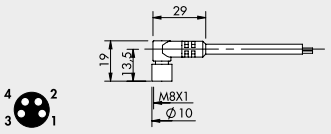
90° M8 CONNECTORS WITH SHIELDED CABLE

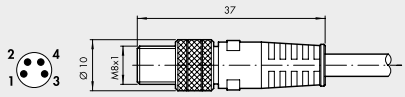
Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240009102	M8 4-pin female, 90° connector with shielded cable L = 2 m
0240009103	M8 4-pin female, 90° connector with shielded cable L = 5 m

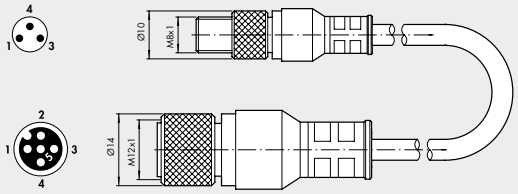
M8 4-POLE MALE CONNECTOR

Pin	Cable color
1	Brown
2	White
3	Blue
4	Black



Code	Description
0240010105	M8 4-pin connector shielded cable L = 5 m

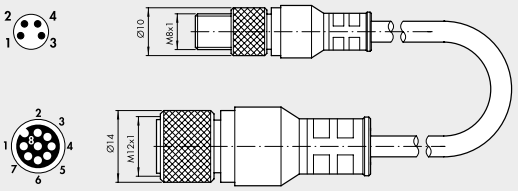
M8 3-POLE MALE – M12 5-POLE FEMALE CONNECTOR WITH CABLE FOR DIGITAL INPUTS/OUTPUTS



Code	Description
0240009045	M8 3-pole male straight - M12 5-pole female connector with cable L= 0.2 m

M8	M12
pin 1	pin 1
pin 4	pin 4
pin 3	pin 3

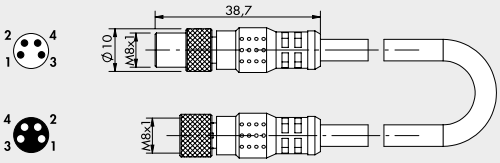
M8 4-POLE MALE – M12 8-POLE FEMALE CONNECTOR WITH CABLE FOR REGTRONIC CONNECTION



Code	Description
0240009046	M8 4-pole male straight - M12 8-pole female connector with cable L= 1 m

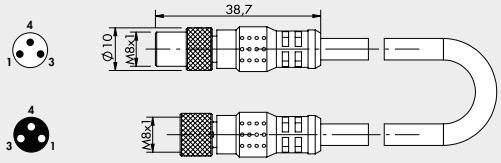
M8	M12
pin 1	pin 8
pin 2	pin 3
pin 3	pin 7
pin 4	disconnect

M8 CONNECTOR WITH SHIELDED CABLE FOR ANALOGUE INPUTS/OUTPUTS



Code	Description
0240005005	M8-M, M8-F 4-pole straight connector with shielded cable L = 1 m
0240005006	M8-M, M8-F 4-pole straight connector with shielded cable L = 3 m
0240005003	M8-M, M8-F 4-pole straight connector with shielded cable L = 5 m
0240005008	M8-M, M8-F 4-pole straight connector with shielded cable L = 10 m

M8 ADAPTER CABLE FOR CONNECTING THE PRESSURE SWITCH TO THE DIGITAL INPUTS MODULE



Code	Description
0240010501	M8-M, M8-F 3-pole adapter with cable L = 0.3 m

Note: Can be used for connecting **1/8-1/4**, **Syntesi®**, **Skillair®**, **PRS L** pressure switches to the module of digital INPUT **S01** of the EB 80 valves. Contact type NO (Normally-Open)

M8F	M8M	Function
pin 1	pin 1	Power supply +
pin 3	pin 4	Signal NO
pin 4	pin 3	Disconnect

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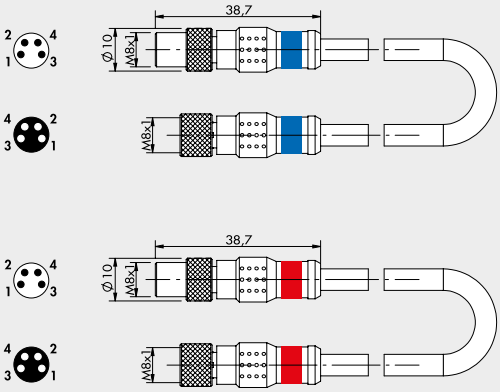
M8 SHIELDED ADAPTER CABLE FOR CONNECTING THE LTS-LTL POSITION TRANSDUCERS TO THE ANALOGUE INPUTS MODULE



Code	Description
0240010601	M8-M, M8-F 4-pole adapter with shielded cable L = 0.3 m (**blue collar**)

Note: Can be used for connecting the **4/20 mA** analog output of the LTL-LTS position sensors to the module of analog INPUT **S04** of the EB 80 valves.

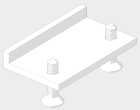
M8F	M8M	Function
pin 1	pin 1	Power supply +
pin 2	pin 2	Signal 4/20 mA
pin 3	pin 3	Power supply –
pin 4	disconnect	

Code	Description
0240010701	M8-M, M8-F 4-pole adapter with shielded cable L = 0.3 m (**red collar**)

Note: Can be used for connecting the **0/10 VDC** analog output of the LTL-LTS position sensors to the module of analog INPUT **S04** of the EB 80 valves.

M8F	M8M	Function
pin 1	pin 1	Power supply +
pin 4	pin 2	Signal 0/10 V
pin 3	pin 3	Power supply –
pin 2	disconnect	

ADDITIONAL FIXING BRACKET TO OMEGA BAR



Code	Description	Weight [g]
02282R4001	Additional fixing bar accessory to EB 80 Omega bar	5

Individually packed

N.B.: to be used to improve the fixing to Omega bars of islands with more than 10 modules. The bracket must be positioned every 5-6 modules.

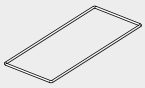
SPARE PARTS

EB 80 BUS/SIGNAL INTERFACE OR SEAL

Code	Description
02282R1005	EB 80 BUS/Signal interface OR seal

Comes in 10-pc. packs

EB 80 GASKET BETWEEN BASE AND BUS/SIGNAL COVER



Code	Description
02282R1004	Kit of gaskets between base and BUS/Signal cover

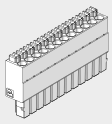
Comes in 10-pc. packs

IDENTIFICATION PLATE KIT

Code	Description
0226107000	Identification plate kit

Comes in 16-pc. packs

CONNECTOR 12 POSITIONS



Code	Description
02282R5010	Connector 12 positions for modules S06 and S07

Comes in 4-pc. packs

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EB 80 ELECTRO-PNEUMATIC SYSTEM

EB 80 is defined as an electro-pneumatic system as it would be simplistic to use the term "solenoid valve island". In effect, a single assembly can combine solenoid valves of all types, multi-position bases, pneumatic and electric supplies arranged as desired in a system, digital or analogue input or output signal control modules and much more besides.
The EB 80 system is protected by numerous patents and utility models, which enhance the most innovative design solutions.
The possible combinations are endless, but the most amazing thing is that they can be obtained using a small number of basic components.
In order to achieve this objective, a single size of small yet high-performance valves to cover the vast majority of applications was conceived.
A single electronic control unit is provided when supplying 12VDC or 24VDC valves with multi-pole cables or with a field bus for each protocol.
All EB 80 versions come with an efficient diagnostic system.
The EB 80 catalogue consists of a first overall introductory chapter followed by a chapter for each subsystem.
NSF H1-certified grease is used to lubricate the valve spool and seals.

TECHNICAL DATA

Supply voltage range	VDC	12 -10% 24 +30%					
Minimum operating voltage	VDC	10.8 *					
Maximum operating voltage	VDC	31.2					
Maximum admissible voltage	VDC	32 ***					
Power for each controlled pilot	W	3 for 15 ms, then holding 0.3					
Drive (for multi-pole)		PNP or NPN					
Solenoid rating		100% ED					
Solenoid valve supply power		See chapter "Electrical connection - E"					
Signal module supply power		See chapter "Signal module - S"					
Protection		Overload and short-circuit protected solenoid pilot Output					
Diagnostics		See chapter "Electrical connection - E"					
Maximum number of solenoid pilots		21 or 38 multi-pole connection; field bus 128					
Ambient temperature	°C	-10 to + 50 (at 8 bar)					
	°F	14 to 122 (at 8 bar)					
Operating pressure		**5/2 and 5/3**			**2/2 and 3/2**		
Non-assisted valves	bar	3 to 8			3.5 to 8		
	MPa	0.3 to 0.8			0.35 to 0.8		
	psi	43 to 116			51 to 116		
Assisted valves	bar	Vacuum to 10					
	MPa	Vacuum to 1					
	psi	Vacuum to 145					
Servo pressure	bar	3 to 8			min. (see graph on page **B2**.57) / max. 8		
	MPa	0.3 to 0.8			min. (see graph on page **B2**.57) / max. 0.8		
	psi	43 to 116			min. (see graph on page **B2**.57) / max. 116		
Valve flow rate, at 6.3 bar ΔP 1 bar		**Ø 4 (5/32")**	**Ø 6**	**Ø 8 (5/16")**	**Ø 1/4"**	**Ø 10 ****	**Ø 3/8" ****
valve 2/2	Nl/min	350	430	500	430	-	-
valve 3/2	Nl/min	350	600	700	600	1250	1250
valve 5/2	Nl/min	350	650	800	650	1250 - 1400	1250 - 1400
valve 5/3	Nl/min	350	460	500	460	1000 - 1250	1000 - 1250
valve V3V (R)	Nl/min	-	-	-	-	1000	1000
Actuation response time (TRA) / reset response time (TRR) at 6 bar							
TRA/TRR valve 2/2 and 3/2	ms	14 / 28					
TRA/TRR valves 5/2 monostable and shut-off valve	ms	12 / 45					
TRA/TRR valve 5/2 bistable	ms	12 / 14					
TRA/TRR valve 5/3	ms	15 / 45					
TRA/TRR valve 3/2 high flow	ms	13 / 36					
Fluid		Unlubricated air					
Air quality required		ISO 8573-1 class 4-7-3					
Degree of protection		IP65 (with connectors connected or plugged if not used)					
Category ATEX		Ⓔx II 3G Ex ec IIC T5 Gc X -10°C<Ta<50°C Ⓔx II 3D Ex tc IIIC T100°C Dc X					
Certifications		CE - EAC - cULus - Ⓔx					

* **Minimum voltage 10.8VDC required at solenoid pilots. Check the minimum voltage at the power supply output using the calculations shown on page B2**.28
** Using high-flow valves or connected valves - see pages **B2**.58
*** **IMPORTANT! Voltage greater than 32VDC will damage the system irreparably.**
N.B.: Refer to the chapter of each EB 80 sub-assembly for specific technical data.

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CERTIFICATIONS

The c UL us certification for the part concerning only CSA (Canadian market) is bound to the following conditions of use:

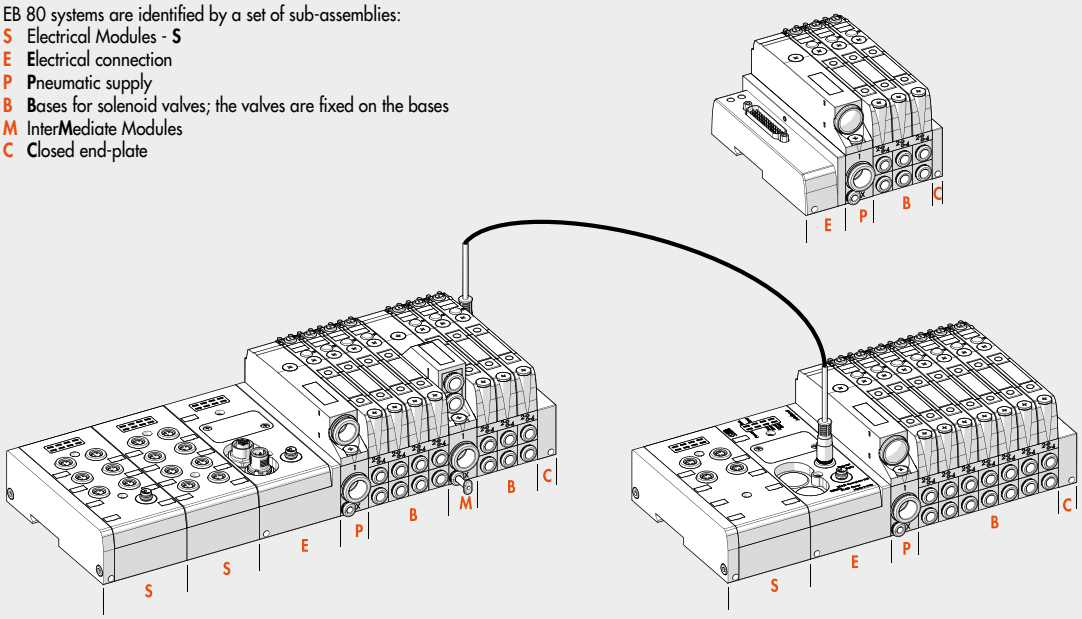
- environment temperature: max 45°C
- ED max 70%

If non-adjoining valves are used, ED max can reach 100% (environment temperature max 45°C)

COMPONENTS

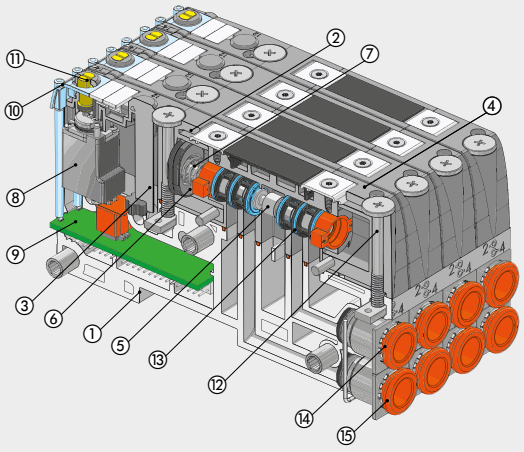
EB 80 systems are identified by a set of sub-assemblies:

S Electrical Modules - **S**
E **E**lectrical connection
P **P**neumatic supply
B **B**ases for solenoid valves; the valves are fixed on the bases
M Inter**M**ediate Modules
C **C**losed end-plate



COMPONENTS – SOLENOID VALVE AND BASE

① BASE: technopolymer
② VALVE BODY: technopolymer
③ CONTROL: technopolymer
④ BASE: technopolymer
⑤ SPOOL: chemically nickel-plated aluminium
⑥ CONTROL PISTON: Stainless steel and NBR
⑦ SPRING: Oteva® steel and Dacromet treatment
⑧ SOLENOID VALVE
⑨ ELECTRONIC BOARD
⑩ LED light display: technopolymer
⑪ MANUAL CONTROL: nickel-plated brass
⑫ SCREW SECURING VALVE TO THE BASE: zinc-plated steel
⑬ SPOOL GASKET: NBR
⑭ Push-in fitting CARTRIDGE for port 2
⑮ Push-in fitting CARTRIDGE for port 4



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THE EB 80 WORLD

ELECTRICAL CONNECTION - E

E025	E044	E0EN	E0EC	E0PN	E0CN	E0PB	E0PL	E0IO	E0LK	E0CC	E0AD
											
25 PIN	44 PIN	EtherNet/IP	EtherCAT	Profinet IO	CANopen	Profibus-DP	Ethernet POWERLINK	IO-Link 32 IN/32 OUT	IO-Link 64 OUT	CC-Link IE Field Basic	Additional
page **B2**.30	page **B2**.30	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.43	page **B2**.48

SIGNAL MODULE - S

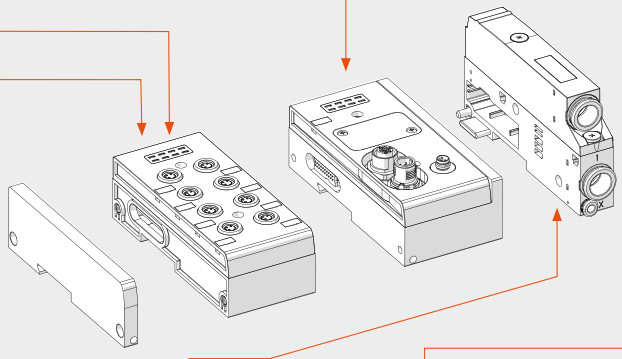
S01	S02	S03	S04	S05	S06	S07	S08	S21
								
8 M8 digital inputs	8 M8 digital outputs	6 M8 digital outputs + electrical supply	4 M8 analogue inputs	4 M8 analogue outputs	16 digital terminal block inputs	16 digital terminal block outputs	4 M8 analogue inputs for temperature measurement	16 M8 configurable digital inputs/ outputs
page **B2**.18	page **B2**.18	page **B2**.19	page **B2**.19	page **B2**.20	page **B2**.20	page **B2**.21	page **B2**.21	page **B2**.22

WIRELESS MODULE - S

S20

Wireless connection module
page **B2**.16

Part included in the **ELECTRICAL CONNECTION - E** with Fieldbus



COMPRESSED-AIR SUPPLY - P

P_ _Z00	P_ _Z_ _	P_ _Z_0	P91Z90
			
Silenced relief	Conveyed relief	Separate reliefs	Module for electric version only
page **B2**.51	page **B2**.51	page **B2**.51	page **B2**.52

PROPORTIONAL PRESSURE REGULATOR - A

A40_Z_0	A41_Z_0
	
Base port 1 pass-through local outlet	Base port 1 sectioned in-series regulation
page **B2**.65	page **B2**.65

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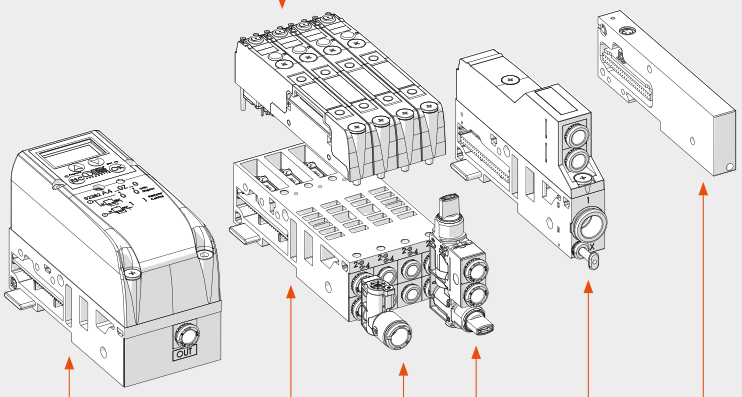
VALVES

Z_ ▲	I_ ▲	W_ ▲	L_ ▲	V_	K_ ▲	O_ ▲	G_	J_	R_ ✚	N0	Y8
											
2 valves 2/2 NC	2 valves 3/2 NC (valid as 5/3 OC)	2 valves 3/2 NO (valid as 5/3 PC)	3/2 NC + 3/2 NO	monostable 5/2	bistable 5/2	5/3 CC	3/2 NC high flow	3/2 NO high flow	Shut-off valve	Dummy valve	Bypass
page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.57	page **B2**.58	page **B2**.58	page **B2**.59	page **B2**.60	page **B2**.60

▲ Can only be used with 6 or 8 control bases.
✚ Requires inlet port X slave synchronisation.



CLOSED END-PLATE - C

C1	C2	C3
		
For islands with multi-pole connector	For islands with fieldbus	For electrical connection of islands with fieldbus to additional islands
page **B2**.74	page **B2**.74	page **B2**.74

BASES FOR VALVES - B

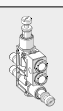
B3_ _ _ _ _0	B4_ _ _ _ _ _
	
3-position base for valves	4-position base for valves
page **B2**.54	page **B2**.54

Y-FITTING

R2

Y-fitting
page **B2**.61

MULTI-FUNCTION MODULE


Fittings with pneumatic functions
page **B2**.92

INTERMEDIATE SUPPORT - M

M_ _ _Z0_	M_ _ _Z_ _	M_ _ _Z_ _
		
Silenced relief	Conveyed relief	Separate relief
page **B2**.69	page **B2**.70	page **B2**.71

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FIXING OPTIONS

1 - Fixing on a DIN bar: tighten the grub screws into modules E (electrical connection) and C (closed end-plate).
For islands with more than 40 valves or 5 modules, also use the additional plate code 02282R4001.

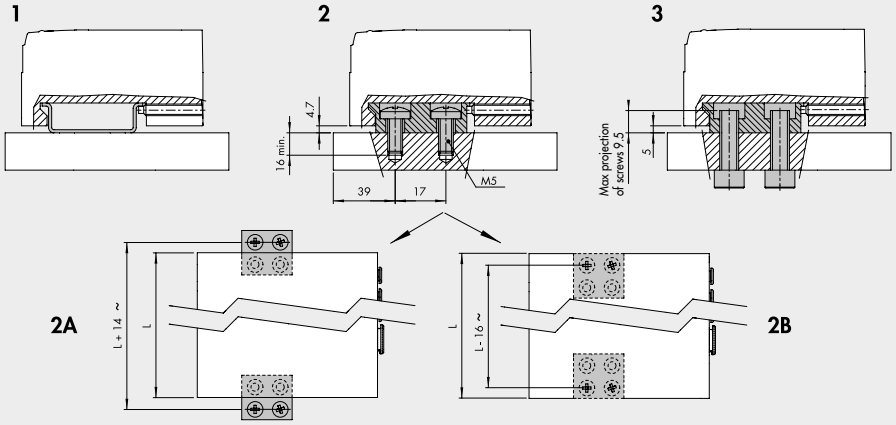
2 - Fixing on a flat surface: use the pair of brackets code 02282R4000 and the M5x20 screws supplied.
You can choose where to position the brackets in relation to the island:

2A - *Protruding brackets*: can be used to install the island + brackets unit from above. First secure the brackets to the modules E and C using the grub screws, then secure everything with M5x20 screws.

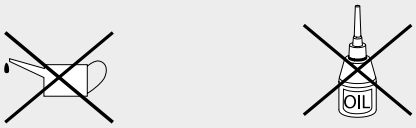
2B - *Concealed brackets*: the overall dimensions of the island are reduced. First secure the brackets to the flat top with M5x20 screws, then place the island onto the brackets and lock the two grub screws provided in the modules E and C.

3 - Fixing through a wall: use the brackets code 02282R4000. The brackets come with M6 threaded holes and can be fixed with M6 screws (not included in the supply) passing through the wall. The brackets can fixed either protruded or concealed.

N.B.: Planar surfaces are required to ensure correct fixing. Avoid twisting or bending the valve units.



LUBRICATION



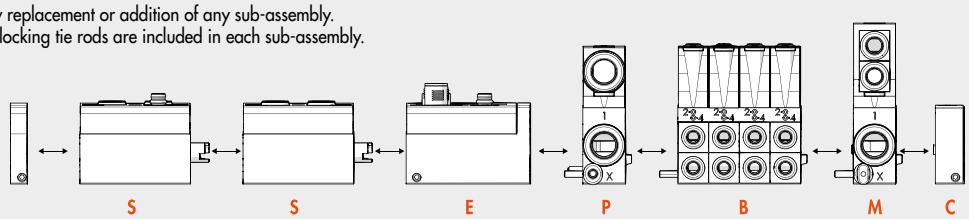
NO LUBE NO OIL

The EB 80 electro-pneumatic system is designed to run millions of cycles without the need for any lubrication. This is possible thanks to the optimisation of its components and the use of a special grease with excellent properties and NSF H1 certified. To avoid removing the grease, it is highly recommended not to lubricate the valve input and output ports and check the quality (to ISO 8573-1 class 4-7-3) of the compressed air used, which is often contaminated by particularly aggressive oils that are released by compressors and are not always compatible with the elastomers used in the valves.

SOME CHARACTERISTICS OF EB 80 SYSTEMS

HORIZONTAL MODULARITY

- Easy replacement or addition of any sub-assembly.
  The locking tie rods are included in each sub-assembly.



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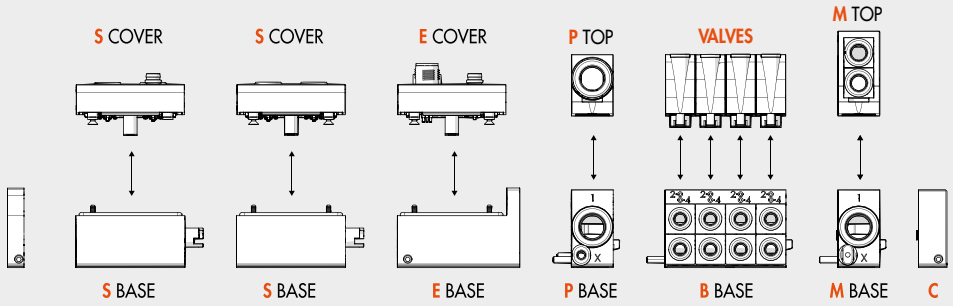
VERTICAL MODULARITY

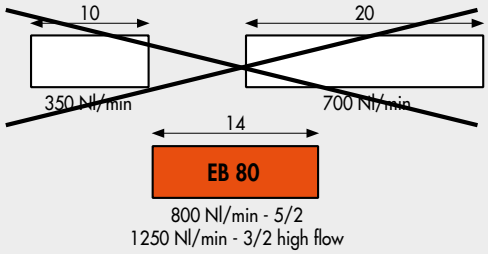
- Easy replacement – no need to disassemble the pack – of the valves on the Bases – B and also of the top part (cover) of subsystems **S**, **E**, **P**, **M** using a single Phillips-head screwdriver.

N.B.: All protocols can be mounted on the base for field buses and all input or output modules can be mounted on the same base for signals.



ONE SIZE FITS ALL

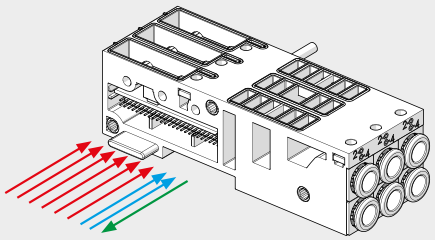
- Reduced dimensions
- High flow rate
- One warehouse and spares



800 Nl/min - 5/2
1250 Nl/min - 3/2 high flow

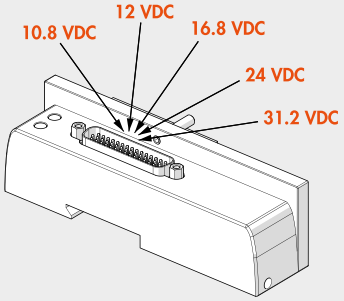
THE SAME BASE FITS BOTH MULTI-POLE CONNECTIONS AND FIELD BUSES

- Controls from multi-pole connection
- Controls from field buses
- Diagnostics



PATENTED

THE SAME ISLAND CAN BE SUPPLIED 10.8 - 31.2 VDC



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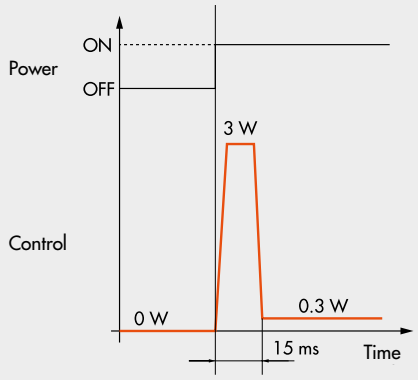
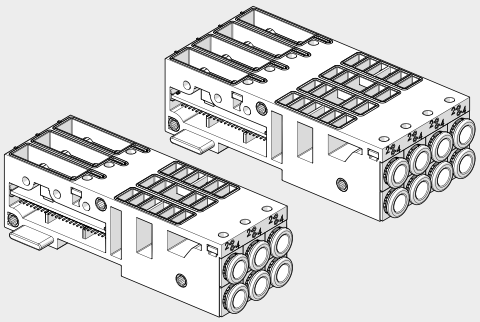
ONLY 0.3 W FOR EACH SOLENOID VALVE

- Speed-up solenoid valve control:
  - high power for a few milliseconds ensures high performance and rapid and safe switching;
  - reduced holding power resulting in reduced temperatures and energy saving.



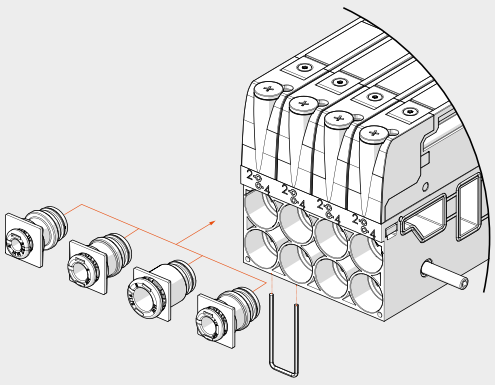
3- OR 4-POSITION BASES FOR VALVES

- Island layout options:
  - **3** 1 base with 3 positions
  - **4** 1 base with 4 positions
  - (**5** 2 bases with 3 positions and 1 dummy valve)
  - **6** 2 bases with 3 positions
  - **7** 1 base with 3 and 1 with 4 positions
  - **8** 2 bases with 4 positions
  - ...
- Compared to single-base solutions, this configuration is advantageous because:
  - just a few bases are required for multiple positions;
  - the base is sturdy and rigid;
  - there is plenty of space to accommodate smart electronics



INTERCHANGEABLE CARTRIDGE FITTINGS

- For pipes Ø 4 (5/32"), 6, 8 (5/16"), 1/4"



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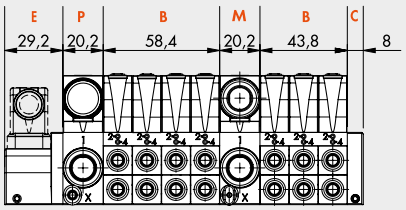
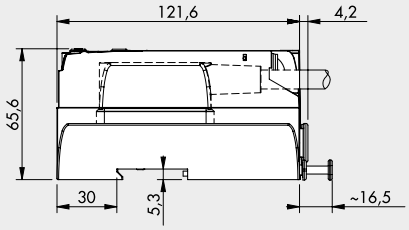
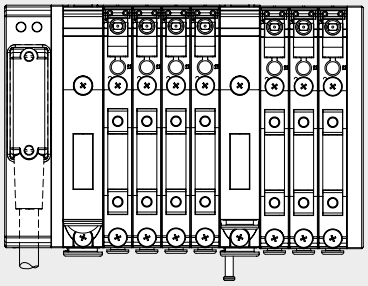
DIMENSIONS

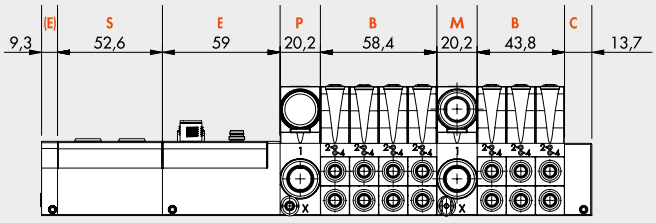
DIMENSION OF VERSIONS WITH MULTI-POLE CONNECTION

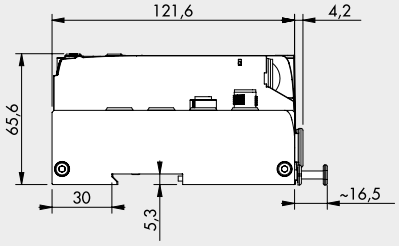


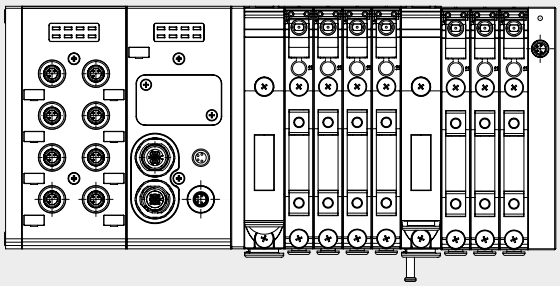




DIMENSION OF VERSIONS WITH FIELD BUS OR ADDITIONAL CONNECTION







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DESCRIPTION

A complete system has a compound **description** of all its subsystems listed in sequence from left to right, as shown below.
The abbreviation of each subsystem is obtained by taking the code and omitting the first digits 02282.
For example: the digital 8-input signal module is identified with code 02282S01; only write S01 in the description.

The abbreviation of each base for valves consists of:

Abbreviation of the Base	**Manual valve control**	**Type of valves**
Obtained from the code, after removing 02282	0 = monostable 1 = bistable	Valves Dummy valve Bypass
Example		
4-position base, 8 solenoid pilots, Ø 6 pipe; code 02282B4086666	Monostable	2 monostable 5/2 valves - V 1 double 3/2 NO - W 1 dummy valve - F
Abbreviation		
B4086666	0	VVWF

The description is therefore a sequence of this type:

EB 80	**- S_ _**	**- E_ _ _**	**- P_ _ _ _ _**	**- B_ _ _ _ _ _ _ _ _ _ _ _**	**- M_ _ _ _ _ _**	**- C_**
EB 80 system	**Electrical Module** (if present)	**Electrical connection**	**Compressed air supply**	**Base for valves** (as many as there are) with normal or dummy	**Intermediate** (if present)	**Closed end-plate**
For the codes:	see page **B2**.22	see page **B2**.28	see page **B2**.52	see page **B2**.55 and **B2**.60	see page **B2**.72	see page **B2**.75

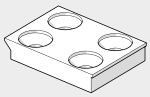
Example:
EB 80-S01-E0EN-P3XZ00-B40866660VWKN-M300Z30-B30388800VVN-C2

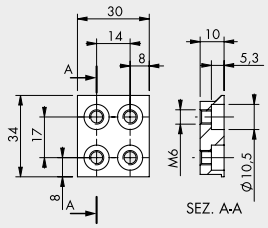
EB 80	**- S01**	**- E0EN**	**- P3XZ00**	**- B40866660VWKN**	**- M300Z30**	**- B30388800VVN**	**- C2**
EB 80 system	**Signal module** complete 8 M8 digital inputs	**Electrical connection** EtherNet/IP	**Compressed air supply** - fitting Ø 12 - pilot servo Ø 4 - silenced relief	**Base for valves** - 4 positions - 8 controls - fittings for pipe Ø 6 - manual monostable control - 5/2 monostable valve - 2 3/2 NO valves - bistable 5/2 valve - dummy valve	**Intermediate** - fittings for pipe Ø 12 - through ports - without supplementary power supply	**Base** - 3 positions - 3 controls - fittings for pipe Ø 8 - manual monostable control - 5/2 monostable valve - 5/2 monostable valve - dummy valve	**Closed end-plate** for valve Island with field bus

Endless number of EB 80 systems can be obtained and their description is variable in length, which can be very extended.
The actual ordering CODE of an EB 80 system is created by Metal Work S.p.a. with a limited number of characters.
The ordering code is not explicative. The description only is univocal, complete and explicative.

ACCESSORIES

FIXING BRACKET





Code	**Description**	**Weight [g]**
02282R4000	EB 80 base fixing bracket	47

Note: 2 pieces per pack complete with 4 M5x20 screws

NOTES

Please refer to the subsystem chapter for other accessories (e.g. connectors) and spare parts.

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EB 80 INDUSTRY 4.0

The new advanced EB 80 diagnostic functions, known as EB 80 I4.0, provide a powerful analysis tool for traditional maintenance operations, ensuring the safe, reliable and lasting operation of production units.
They are available for all electrical connections with fieldbuses and bases marked I4.0, with advanced diagnostics integrated in accordance with Industry 4.0 philosophy.
These functions use the original EB 80 diagnostics, integrating them with the ability of the station itself to control IOs.
They re-organise and optimise maintenance management by developing predictive maintenance in order to:
- predict faults;
- intervene early to avoid system downtime;
- have all information on equipment operation available in real time;
- monitor component end-of-lifetime;
- optimise warehouse spare parts management.

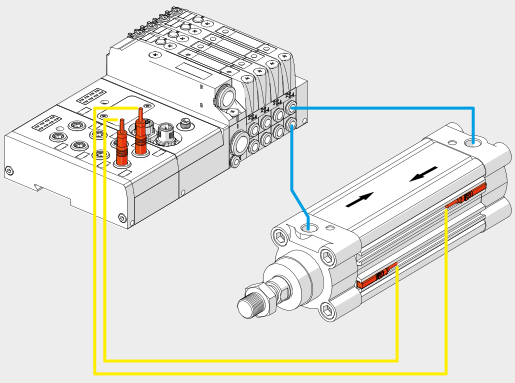
This makes it possible to turn the data collected into concrete actions using standard EB 80 stations without needing additional modules.

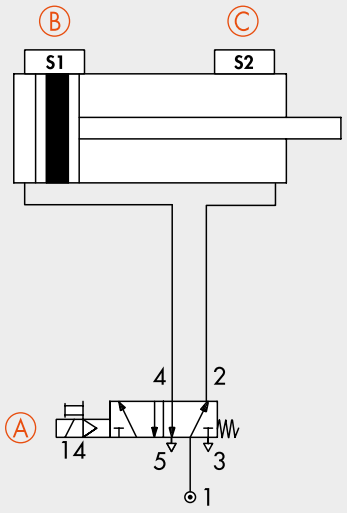
Description of EB 80 I4.0 functions:

• System data:
- EB 80 system startup counter;
- supply alert counter.

• Valve data. Each valve base for each solenoid valve permanently stores the following information:
- cycle counter;
- counter for total solenoid valve excitation time;
- activation of a flag to signal average lifetime exceeded;
- short circuit alert counter;
- open circuit alert counter.

• Electropneumatic system control functions (data updated with each cycle):
- measurement of the delay between activating the solenoid valve "A" and actuator movement commencing via the signal of sensor "B", with delays that exceed the limit flagged;
- measurement of actuator movement time using two linked sensors "B" and "C", with exceeded time limits flagged;
- measurement of the delay between deactivating the solenoid valve "A" (or activating a second valve) and actuator return commencing via the signal of sensor "B", with exceeded time limits flagged;
- measurement of actuator return time using two linked sensors "B" and "C", with exceeded time limits flagged;
- counter for actuator range of motion.





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Accessories

	Art. No.	Type No.
M8 plug for electrical connections	153704	0240009039
M8 male connector straight, for analogue inputs/outputs, 4-pin	153708	0240010300
Connection cable for analogue inputs/outputs, M8 male straight / M8 female straight, 4-pin, shielded cable, length 1 m	153721	0240005005
Connection cable for analogue inputs/outputs, M8 male straight / M8 female straight, 4-pin, shielded cable, length 3 m	153722	0240005006
Additional fixing bracket for OMEGA bar, for valve island EB 80	153576	02282R4001
Connection cable for analogue inputs/outputs, M8 male straight / M8 female straight, 4-pin, shielded cable, length 5 m	153723	0240005003
Connection cable for analogue inputs/outputs, M8 male straight / M8 female straight, 4-pin, shielded cable, length 10 m	153724	0240005008

Spareparts

	Art. No.	Type No.
EB 80 interface gasket, for sealing between signal module and fieldbus connection, PU 10 pcs.	153912	02282R1005
EB 80 gasket for signal module and fieldbus connection, for sealing beween upper and lower part, PU 10 pcs.	153911	02282R1004
Identification plate, strip of 16 pcs.	153922	0226107000

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